

<b>NOTICE OF REVISION (NOR)</b>  This revision described below has been authorized for the document listed.		1. DATE (YYMMDD) 95-07-12		Form Approved OMB No. 0704-0188							
Public reporting burden for this collection is estimated to average 2 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Department of Defense, Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188), Washington, DC 20503. PLEASE DO NOT RETURN YOUR COMPLETED FORM TO EITHER OF THESE ADDRESSES. RETURN COMPLETED FORM TO THE GOVERNMENT ISSUING CONTRACTING OFFICER FOR THE CONTRACT/ PROCURING ACTIVITY NUMBER LISTED IN ITEM 2 OF THIS FORM.				2. PROCURING ACTIVITY NO.							
				3. DODAAC							
4. ORIGINATOR  a. TYPED NAME (First, Middle Initial, Last) N. A.		b. ADDRESS (Street, City, State, Zip Code)  Defense Electronics Supply Center 1507 Wilmington Pike Dayton, OH 45444-5765		5. CAGE CODE 67268  7. CAGE CODE 67268							
				6. NOR NO. 5962-R170-95  8. DOCUMENT NO. 5962-86049							
9. TITLE OF DOCUMENT  MICROCIRCUIT, DIGITAL, SINGLE CHANNEL DRIVER/RECEIVER, HYBRID.			10. REVISION LETTER  a. CURRENT C b. NEW D		11. ECP NO.  N. A.						
12. CONFIGURATION ITEM (OR SYSTEM) TO WHICH ECP APPLIES All											
13. DESCRIPTION OF REVISION  Sheet 1: Revisions ltr column; add "D". Revisions description column; add "Changes in accordance with NOR 5962-R170-95". Revisions date column; add "95-07-12". Revision level block; change "C" to "D". Rev status of sheets; For sheets 1, 7, 8, and 14 change "C" to "D".  Sheet 7: Table I, Total current, I <sub>EE</sub> -SB, for device type 02, only, change "30" maximum to "35" maximum. Table I, Total current, I <sub>CC1</sub> -25, for device type 02, only; add "2/" . Revision level block; change "C" to "D".  Sheet 8: Table I, Total current, I <sub>EE</sub> -100 and I <sub>CC</sub> -100, for device type 02, only; add "2/". Revision level block; change "C" to "D".  Sheet 14: Figure 1, case outline Y, end dimension right side of figure; add ".600 ±.010, measured at standoff". The dimension measures lead row spacing (see case Z for same dimension). Revision level block; change "C" to "D".											
14. THIS SECTION FOR GOVERNMENT USE ONLY											
a. (X one)		<table border="1"> <tr> <td>X</td> <td>(1) Existing document supplemented by the NOR may be used in manufacture.</td> </tr> <tr> <td></td> <td>(2) Revised document must be received before manufacturer may incorporate this change.</td> </tr> <tr> <td></td> <td>(3) Custodian of master document shall make above revision and furnish revised document.</td> </tr> </table>				X	(1) Existing document supplemented by the NOR may be used in manufacture.		(2) Revised document must be received before manufacturer may incorporate this change.		(3) Custodian of master document shall make above revision and furnish revised document.
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b. ACTIVITY AUTHORIZED TO APPROVE CHANGE FOR GOVERNMENT			c. TYPED NAME (First, Middle Initial, Last)								
d. TITLE Chief, Electronic Components Branch		e. SIGNATURE Kendall A. Cottongim		f. DATE SIGNED (YYMMDD) 95-07-12							
15a. ACTIVITY ACCOMPLISHING REVISION  DESC-ECT		b. REVISION COMPLETED (Signature)  Gary Zahn		c. DATE SIGNED (YYMMDD) 95-07-12							

# REVISIONS

LTR	DESCRIPTION	DATE (YR-MO-DA)	APPROVED
A	Page 2, 1.3: Change $\Theta_{JA}$ . Page 6, 4.2a(2) and 4.3.2b(2): Change $T_A$ to $T_C$ for burn-in and life test. Pages 7 and 8, table I: add end-point electrical for $V_{IH}$ . Add footnote 2/.	86-10-30	W. Heckman
B	Made technical changes to table I. Updated drawing format with editorial changes. Added device types 02 through 07. Added cases Y, Z, U, and T. Changed to reflect MIL-H-38534 processing. Device type 01 inactive for new design. Added current CAGE code 67268 to sheet 1.	90-02-09	W. Heckman
C	Add device type 08. Made technical changes to table I. Change dimensions for case outline Y. Change dimensions for case outline U. Editorial changes throughout.	94-01-14	K. Cottongim

THE ORIGINAL FIRST PAGE OF THIS DRAWING HAS BEEN REPLACED.

CURRENT CAGE CODE 67268

REV																													
SHEET																													
REV	C	C	C	C	C	C																							
SHEET	15	16	17	18	19	20																							
REV STATUS OF SHEETS				REV			C	C	C	C	C	C	C	C	C	C	C	C	C	C									
				SHEET			1	2	3	4	5	6	7	8	9	10	11	12	13	14									
PMIC N/A				PREPARED BY Donald R. Osborne						DEFENSE ELECTRONICS SUPPLY CENTER DAYTON, OHIO 45444																			
<b>STANDARDIZED MILITARY DRAWING</b>  THIS DRAWING IS AVAILABLE FOR USE BY ALL DEPARTMENTS AND AGENCIES OF THE DEPARTMENT OF DEFENSE  AMSC N/A				CHECKED BY D.A. DiCenzo																									
				APPROVED BY N.A. Hauck																									
				DRAWING APPROVAL DATE 86-07-30																									
				REVISION LEVEL C																									
										SIZE <b>A</b>	CAGE CODE 14933	5962-86049																	
										SHEET 1 OF 20																			

## 1. SCOPE

1.1 Scope. This drawing describes device requirements for class H hybrid microcircuits to be processed in accordance with MIL-H-38534.

1.2 Part or Identifying Number (PIN). The complete PIN shall be as shown in the following example:

<u>5962-86049</u>	<u>01</u>	<u>X</u>	<u>X</u>
Drawing number	Device type (see 1.2.1)	Case outline (see 1.2.2)	Lead finish per MIL-H-38534

1.2.1 Device type(s). The device type(s) shall identify the circuit function as follows:

<u>Device type</u>	<u>Generic number</u>	<u>Circuit function</u>
01	BUS-63105	Single channel driver-receiver
02	BUS-63105II, BUS-63106II	Low power, single channel driver-receiver
03	ARX2402	Single channel driver-receiver
04	ARX3402	Low power, single channel driver-receiver
05	CT-1487M, BUS-8553	Single channel driver-receiver
06	NHI-1509	Single channel driver-receiver
07	FC155361	Single channel driver-receiver
08	FC155362	Single channel driver-receiver

1.2.2 Case outline(s). The case outline(s) shall be as designated in MIL-STD-1835 and as follows:

<u>Outline letter</u>	<u>Descriptive designator</u>	<u>Terminals</u>	<u>Package style</u>
X	See figure 1	24	Dual-in-line package
Y	See figure 1	24	Dual-in-line package
Z	See figure 1	24	Dual-in-line package
U	See figure 1	24	Dual-in-line package
T	See figure 1	24	Flat package

1/ Receiver standby low, compatible with manchester encoder-decoder described in SMD 78029.

2/ Receiver standby high, compatible with Smith's manchester encoder-decoder.

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### 1.3 Absolute maximum ratings. 1/

Supply voltage range:	
$V_{CC}$ (device types 01, 03, 04, 05, 06, 07, and 08)	-0.3 V dc to +18 V dc
$V_{EE}$ (device types 01, 02, 03, 04, 05, 07, and 08)	+0.3 V dc to -18 V dc
$V_{CC1}$	-0.3 V dc to +7 V dc
Logic input voltage range	-0.3 V dc to $V_{CC1}$
Receiver differential voltage	40 Vp-p
Receiver common mode voltage range	-10 V dc to +10 V dc
Driver peak output current	200 mA
Power dissipation ( $P_D$ ) at +125°C:	
Device types 01, 05, 07, and 08	4 W
Device type 02	2.5 W
Device type 03	2.2 W
Device type 04	1.6 W
Device type 06	0.585 W
Storage temperature range	-65°C to +150°C
Lead temperature (soldering, 10 seconds)	+300°C
Junction temperature ( $T_J$ )	+160°C
Thermal resistance, junction-to-case ( $\Theta_{JC}$ ):	
Device types 01, 06, 07, and 08	8.8°C/W
Device type 02	7.0°C/W
Device type 03	47.2°C/W
Device type 04	88°C/W
Device type 05	60°C/W
Thermal resistance, junction to ambient ( $\Theta_{JA}$ ):	
Device types 01, 06, 07, and 08	38.8°C/W
Device type 02	37.0°C/W
Device type 03	77.2°C/W
Device type 04	110°C/W
Device type 05	80°C/W

### 1.4 Recommended operating conditions.

Supply voltage range:	
$V_{CC}$ (device types 01, 03, 04, 05, 06, 07, and 08)	+14.25 V dc to +15.75 V dc
$V_{EE}$ (device types 01, 02, 03, 04, 05, 07, and 08)	-14.25 V dc to -15.75 V dc
$V_{CC1}$	+4.5 V dc to +5.5 V dc
Logic input voltage range	0 V dc to +5.0 V dc
Receiver differential voltage	30 Vp-p
Receiver common mode voltage range	-5.0 V dc to +5.0 V dc
Driver peak output current:	
Device types 01, 03, 04, 05, 06, 07, and 08	180 mA
Device type 02	160 mA
Serial data rate	1.0 MHz maximum
Junction temperature ( $T_J$ )	+150°C maximum
Case operating temperature range ( $T_C$ )	-55°C to +125°C

1/ Stresses above the absolute maximum rating may cause permanent damage to the device. Extended operation at the maximum levels may degrade performance and affect reliability.

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## 2. APPLICABLE DOCUMENTS

2.1 Government specification and standards. Unless otherwise specified, the following specification and standards of the issue listed in that issue of the Department of Defense Index of Specifications and Standards specified in the solicitation, form a part of this drawing to the extent specified herein.

### SPECIFICATION

#### MILITARY

MIL-H-38534 - Hybrid Microcircuits, General Specification for.

### STANDARDS

#### MILITARY

MIL-STD-883 - Test Methods and Procedures for Microelectronics.

MIL-STD-1835 - Microcircuit Case Outlines.

### HANDBOOK

#### MILITARY

MIL-HDBK-1553 - Multiplex Application Handbook.

(Copies of the specification and standards required by manufacturers in connection with specific acquisition functions should be obtained from the contracting activity or as directed by the contracting activity.)

2.2 Order of precedence. In the event of a conflict between the text of this drawing and the references cited herein, the text of this drawing shall take precedence.

## 3. REQUIREMENTS

3.1 Item requirements. The individual item requirements shall be in accordance with MIL-H-38534 and as specified herein.

3.2 Design, construction, and physical dimensions. The design, construction, and physical dimensions shall be as specified in MIL-H-38534 and herein.

3.2.1 Case outline(s). The case outline(s) shall be in accordance with 1.2.2 herein.

3.2.2 Terminal connections. The terminal connections shall be as specified on figure 2.

3.2.3 Waveforms. The waveforms shall be as specified on figure 3.

3.3 Electrical performance characteristics. Unless otherwise specified herein, the electrical performance characteristics are as specified in table I and shall apply over the full specified operating temperature range.

3.4 Electrical test requirements. The electrical test requirements shall be the subgroups specified in table II. The electrical tests for each subgroup are described in table I.

3.5 Marking. Marking shall be in accordance with MIL-H-38534. The part shall be marked with the PIN listed in 1.2 herein. In addition, the manufacturer's PIN may also be marked as listed in QML-38534 (see 6.6 herein).

3.6 Manufacturer eligibility. In addition to the general requirements of MIL-H-38534, the manufacturer of the part described herein shall maintain the electrical test data (variables format) from the initial quality conformance inspection group A lot sample, produced on the certified line, for each device type listed herein. The data should also include a summary of all parameters manually tested, and for those which, if any, are guaranteed. This data shall be maintained under document revision level control by the manufacturer and be made available to the preparing activity (DESC-EC) upon request.

3.7 Certificate of compliance. A certificate of compliance shall be required from a manufacturer in order to be listed as an approved source of supply in QML-38534 (see 6.6 herein). The certificate of compliance submitted to DESC-EC prior to listing as an approved source of supply shall affirm that the manufacturer's product meets the requirements of MIL-H-38534 and the requirements herein.

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TABLE I. Electrical performance characteristics.

Test	Symbol	Conditions 1/ -55° C ≤ T <sub>C</sub> ≤ +125° C unless otherwise specified	Group A subgroups	Device type	Limits		Unit
					Min	Max	
Receiver							
Input level	V <sub>I</sub>	Differential input, pin 15 to pin 16 2/	4,5,6	All	40		Vp-p
Input common mode voltage range	V <sub>ICM</sub>	Independent of xfmr or in accordance with 2/ MIL-HDBK-1553	4,5,6	All	-5	+5	V(pk)
Output low voltage	V <sub>OL</sub>	I <sub>OL</sub> = 16 mA	1,2,3	01,02		0.5	V
		I <sub>OL</sub> = 4 mA		03,04,05, 06,07,08			
Output high voltage	V <sub>OH</sub>	I <sub>OH</sub> = -0.4 mA	1,2,3	01,03,04, 05,06,07,08	2.5		V
				02	2.4		
Transmitter							
Input low voltage	V <sub>IL</sub>	3/	1,2,3	All		0.7	V
Input high voltage	V <sub>IH</sub>	3/	1,2,3	All	2		V
Input low current	I <sub>IL</sub>	V <sub>IL</sub> = 0.4 V	1,2,3	01,03,05, 07,08	-1.6		mA
				02	-0.72	0.04	
				04,06	-0.4		
Input high current	I <sub>IH</sub>	V <sub>IH</sub> = 2.7 V	1,2,3	01,03,04, 05,06,07,08		0.04	mA
				02	-0.72	0.04	
Output voltage	V <sub>O</sub>	Across 35Ω load	1,2,3	All	6	9	Vp-p
Output noise voltage	V <sub>ON</sub>	Across 35Ω load	4,5,6	All		10	mVp-p

See footnotes at end of table.

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TABLE I. Electrical performance characteristics - Continued.

Test	Symbol	Conditions <u>1/</u> -55° C ≤ T <sub>C</sub> ≤ +125° C unless otherwise specified	Group A subgroups	Device type	Limits		Unit
					Min	Max	
Receiver strobe							
Input low voltage	V <sub>SIL</sub>	<u>3/</u>	1,2,3	All		0.7	V
Input high voltage	V <sub>SIH</sub>	<u>3/</u> in accordance with <u>2/</u> MIL-HDBK-1553	1,2,3	All	2		V
Input low current	I <sub>SIL</sub>	V <sub>SIL</sub> = 0.4 V	1,2,3	01,05,07,08	-1.6		mA
				02	-0.72	0.4	
				03,06	-0.8		
				04	-0.4		
Input high current	I <sub>SIH</sub>	V <sub>SIH</sub> = 2.7 V	1,2,3	01,03,04, 05,06,07,08		0.04	mA
				02	-0.72	0.04	
Transmitter inhibit							
Input low voltage	V <sub>IIL</sub>	<u>3/</u>	1,2,3	All		0.7	V
Input high voltage	V <sub>IIH</sub>	<u>3/</u>	1,2,3	All	2		V
Input low current	I <sub>IIL</sub>	V <sub>SIL</sub> = 0.4 V	1,2,3	01,03,05, 07,08	-1.6		mA
				02	-0.72	0.04	
				04,06	-0.4		
Input high current	I <sub>IIH</sub>	V <sub>SIH</sub> = 2.7 V	1,2,3	01,03,04, 05,06,07,08		0.04	mA
				02	-0.72	0.04	

See footnotes at end of table.

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TABLE I. Electrical performance characteristics - Continued.

Test	Symbol	Conditions 1/ -55° C ≤ T <sub>C</sub> ≤ +125° C unless otherwise specified	Group A subgroups	Device type	Limits		Unit
					Min	Max	
Power supply							
Total current	I <sub>CC</sub> -SB	(Standby mode)	1,2,3	01,07,08		50	mA
				03		40	
				04		1	
				05,06		25	
	I <sub>EE</sub> -SB	(Standby mode)		01,07,08		50	
				02,03		30	
				04		16.5	
				05		35	
	I <sub>CC1</sub> -SB	(Standby mode)		01,07,08		35	
				02,05		45	
				03		20	
				04,06		30	
	I <sub>CC</sub> -25	(25% duty cycle into 35Ω load)	4,5,6	01,07,08		50	
				03		90	
				05,06		75	
				04		55	
	I <sub>EE</sub> -25	(25% duty cycle into 35Ω load)		01,07,08		95	
				02 2/		80	
				03		30	
				04		21	
				05		35	
	I <sub>CC1</sub> -25	(25% duty cycle into 35Ω load)		01,07,08		35	
				02,05		45	
				03		20	
				04,06		30	
	I <sub>CC</sub> -50	(50% duty cycle into 35Ω load)		01,07,08		50	
				03		140	
				04		110	
				05,06		130	
	I <sub>EE</sub> -50	(50% duty cycle into 35Ω load)		01,07,08		140	
				02		130	
				03		30	
				04		25	
				05		35	

See footnotes at end of table.

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TABLE I. Electrical performance characteristics - Continued.

Test	Symbol	Conditions 1/ -55° C ≤ T <sub>C</sub> ≤ +125° C unless otherwise specified	Group A subgroups	Device type	Limits		Unit
					Min	Max	

## Power supply - continued

	I <sub>CC1</sub> -50	(50% duty cycle into 35Ω load)	4,5,6	01,07,08		35	mA
				02,05		45	
				03		20	
				04,06		30	
	I <sub>CC</sub> -100	(100% duty cycle into 35Ω load)	1,2,3	01,07,08		50	
				03		240	
				04,06		220	
				05		235	
	I <sub>EE</sub> -100	(100% duty cycle into 35Ω load)		01,07,08		220	
				02		225	
				03,04		30	
				05		35	
	I <sub>CC1</sub> -100	(100% duty cycle into 35Ω load)		01,07,08		35	
				02,05		45	
				03		20	
				04,06		30	

## Receiver

Input resistance	R <sub>IN</sub>	1 MHz sine wave <u>2</u> /	4,5,6	All	7		kΩ
Input capacitance	C <sub>IN</sub>	1 MHz sine wave <u>2</u> /	4	All		5	pF
Threshold voltage	V <sub>TH</sub>	<u>4</u> /	1,2,3	01,02,03, 04,05,06	0.56	1.05	Vp-p
				07,08	0.80	1.2	
		<u>4</u> / Group C end point electrical		01,03,04, 05,06,07,08	0.50	1.1	
				02	0.56	1.0	

See footnotes at end of table.

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TABLE I. Electrical performance characteristics - Continued.

Test	Symbol	Conditions 1/ -55° C ≤ T <sub>C</sub> ≤ +125° C unless otherwise specified	Group A subgroups	Device type	Limits		Unit
					Min	Max	

## Transmitter

Output resistance (transmitter off)	R <sub>OUT</sub>	1 MHz sine wave 2/	4,5,6	All	10		kΩ
Output capacitance (transmitter off)	C <sub>OUT</sub>	1 MHz sine wave 2/	4	All		5	pF
Output offset voltage	V <sub>OS</sub>	2/ 5/	4,5,6	All		±90	mV pk
Peak amplitude variation	A <sub>V</sub>	2/ 6/	4,5,6	01,03,04, 05,06,07,08	-15	+15	%

## Receiver

Delay time, input to output	t <sub>DR</sub>	Delay time from differen- tial input <u>zero</u> crossing to DATA or DATA 2/ (see figure 3)	9,10,11	All		400	ns
Strobe delay	t <sub>DS</sub>	Delay time from strobe rising or falling edge to DATA or DATA 2/ (see figure 3)	9,10,11	01,02,03, 05,06,07,08 04		200 250	

## Transmitter

Rise time	t <sub>R</sub>	Output load = 35Ω (see figure 3)	9,10,11	All	100	300	ns
Fall time	t <sub>F</sub>			All	100	300	
Delay time	t <sub>DT</sub>	Output load = 35Ω (see figure 3) 2/		01,02,05, 07,08 04 03,06		250 350 150	
Inhibit delay inhibiting	t <sub>DI-H</sub>	Output load = 35Ω (see figure 3) 2/		01,02,04, 05,07,08 03,06		450 200	
Inhibit delay active	t <sub>DI-L</sub>	Output load = 35Ω (see figure 3) 2/		01,02,04, 05,07,08 03,06		250 100	

See footnotes at end of table.

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TABLE I. Electrical performance characteristics - Continued.

- 1/  $V_{CC} = +15\text{ V}$ , for device types 01, 03, 04, 05, 06, 07, and 08,  $V_{EE} = -15\text{ V}$  for device types 01, 02, 03, 04, 05, 07, and 08,  $V_{CC1} = +5\text{ V}$ .
- 2/ This parameter is tested initially and after any process or design change which may affect this parameter.
- 3/ These parameters are tested on a go-no-go basis in conjunction with other measured parameters and are not directly testable.
- 4/ Threshold is measured in direct coupled mode including the transformer. Threshold is the maximum level on the BUS at which there are no pulses on either receiver output. Divide by 1.4 to obtain threshold in transformer coupled mode. Add 0.14 V in direct coupled mode or 0.10 V in transformer coupled mode to obtain threshold at which no errors are observed when receiver is used with 15530 CMOS Manchester encoder-decoder.
- 5/ Measured across  $35\Omega$  load, 2.5  $\mu\text{s}$  after parity bit mid-bit zero crossing of a 660 microseconds message.
- 6/ Measured across  $35\Omega$  load, variation of average peak amplitude.

3.8 Certificate of conformance. A certificate of conformance as required in MIL-H-38534 shall be provided with each lot of microcircuits delivered to this drawing.

#### 4. QUALITY ASSURANCE PROVISIONS

4.1 Sampling and inspection. Sampling and inspection procedures shall be in accordance with MIL-H-38534.

4.2 Screening. Screening shall be in accordance with MIL-H-38534. The following additional criteria shall apply:

a. Burn-in test, method 1015 of MIL-STD-883.

(1) Test condition A, B, C, or D. The test circuit shall be maintained by the manufacturer under document revision level control and shall be made available to either DESC-EC or the acquiring activity upon request. Also, the test circuit shall specify the inputs, outputs, biases, and power dissipation, as applicable, in accordance with the intent specified in test method 1015.

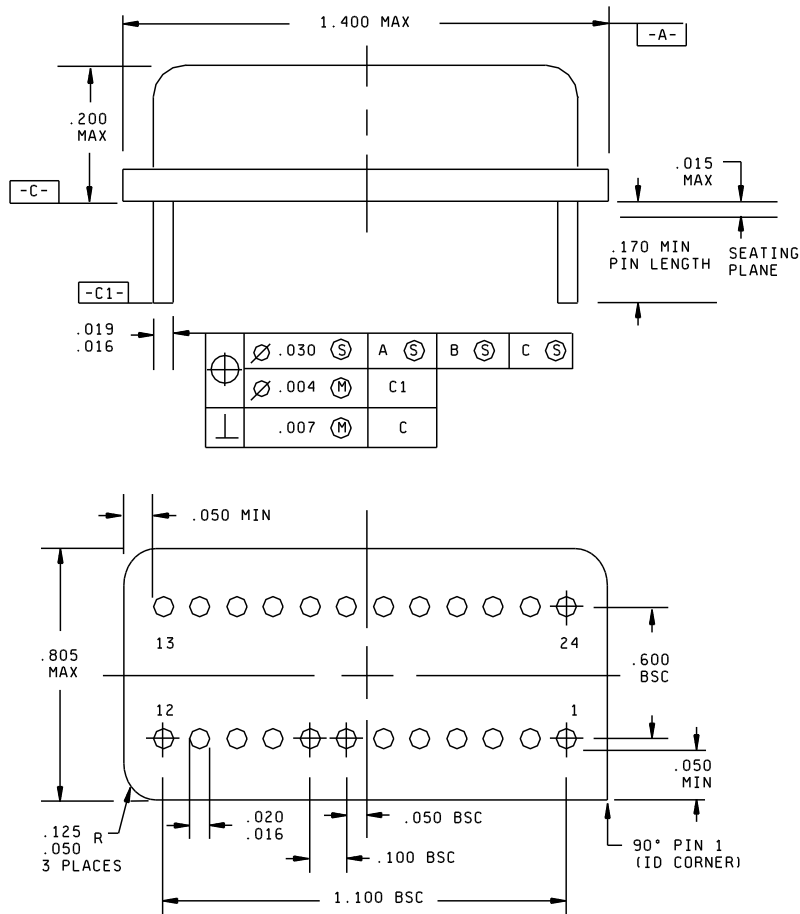
(2)  $T_A$  as specified in accordance with table I of method 1015 of MIL-STD-883.

b. Interim and final electrical test parameters shall be as specified in table II herein, except interim electrical parameter tests prior to burn-in are optional at the discretion of the manufacturer.

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		<b>REVISION LEVEL C</b>	<b>SHEET 10</b>

Device types 01, 05, 07, and 08

Case X



Inches	mm	Inches	mm
.004	0.10	.100	2.54
.007	0.18	.125	3.18
.015	0.38	.170	4.32
.016	0.41	.200	5.08
.019	0.48	.600	15.24
.020	0.50	.805	20.45
.030	0.76	1.100	27.94
.050	1.27	1.400	35.56

NOTES:

1. Dimensions are in inches.
2. Metric equivalents are given for general information only.
3. Lead identification numbers are for reference only.
4. Lead spacing dimensions apply only at seating plane.
5. The total number of terminals are 24.

FIGURE 1. Case outlines.

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**C**

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**11**

### Case Y

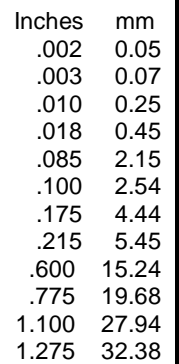


FIGURE 1. Case outlines - Continued.

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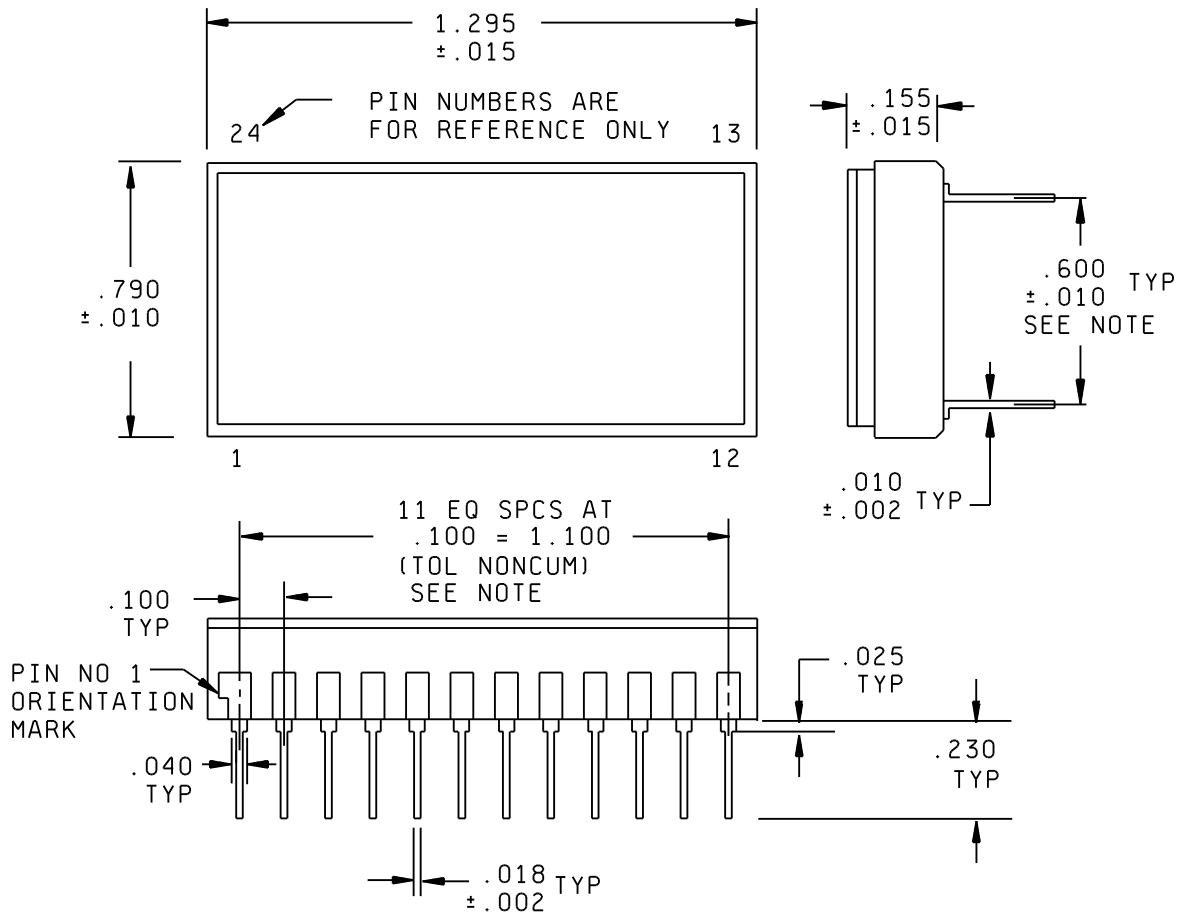
**5962-86049**

REVISION LEVEL  
C

SHEET  
12

Device type 02

Case Z



Inches	mm
.002	0.05
.010	0.25
.015	0.38
.018	0.46
.025	0.64
.040	1.02
.100	2.54
.155	3.94
.230	5.84
.600	15.24
.790	20.07
1.100	27.94
1.295	32.89

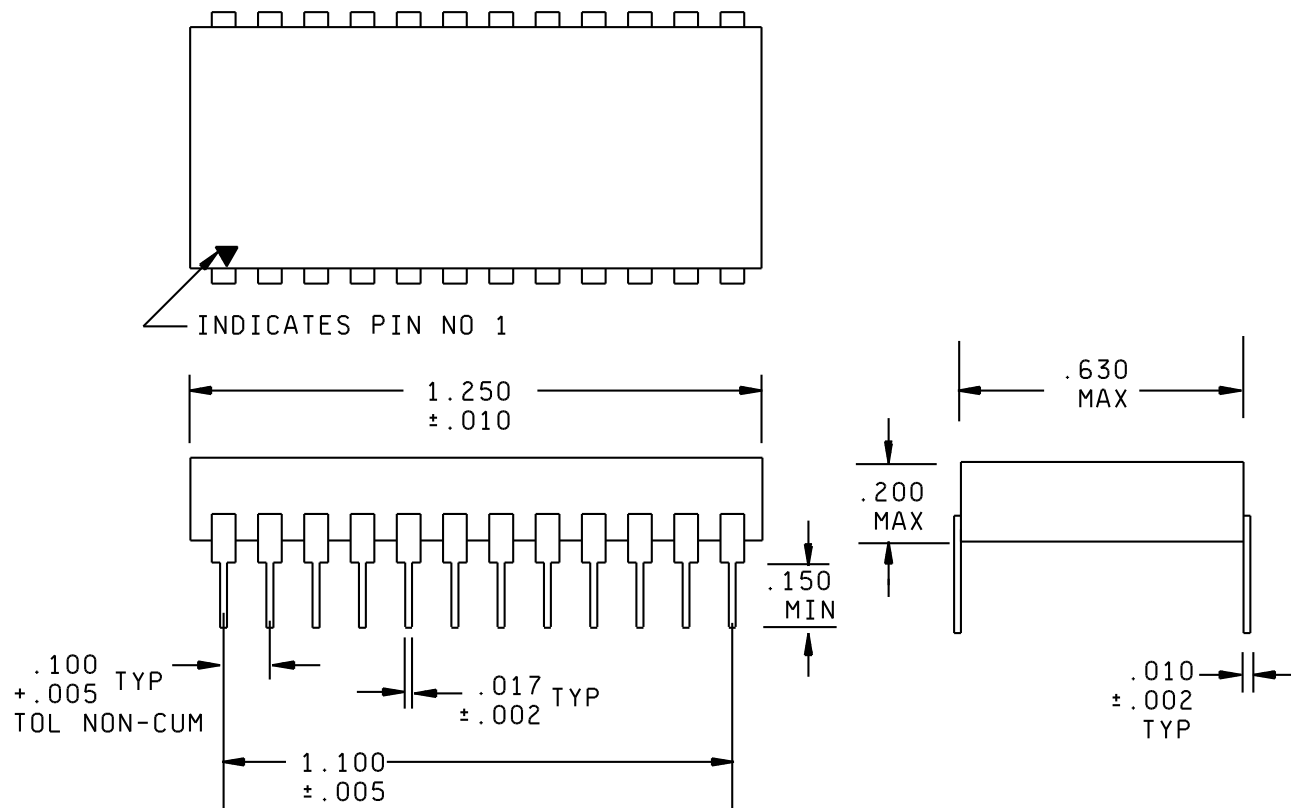
NOTE: Lead cluster to be centralized within ±0.010 of outline dimensions.

FIGURE 1. Case outlines - Continued.

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Device type 04

Case U



Inches	mm
.002	0.05
.005	0.13
.010	0.25
.017	0.43
.100	2.54
.150	3.81
.200	5.08
.600	15.24
.630	16.00
1.100	27.94
1.250	31.75

FIGURE 1. Case outlines - Continued.

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SIZE  
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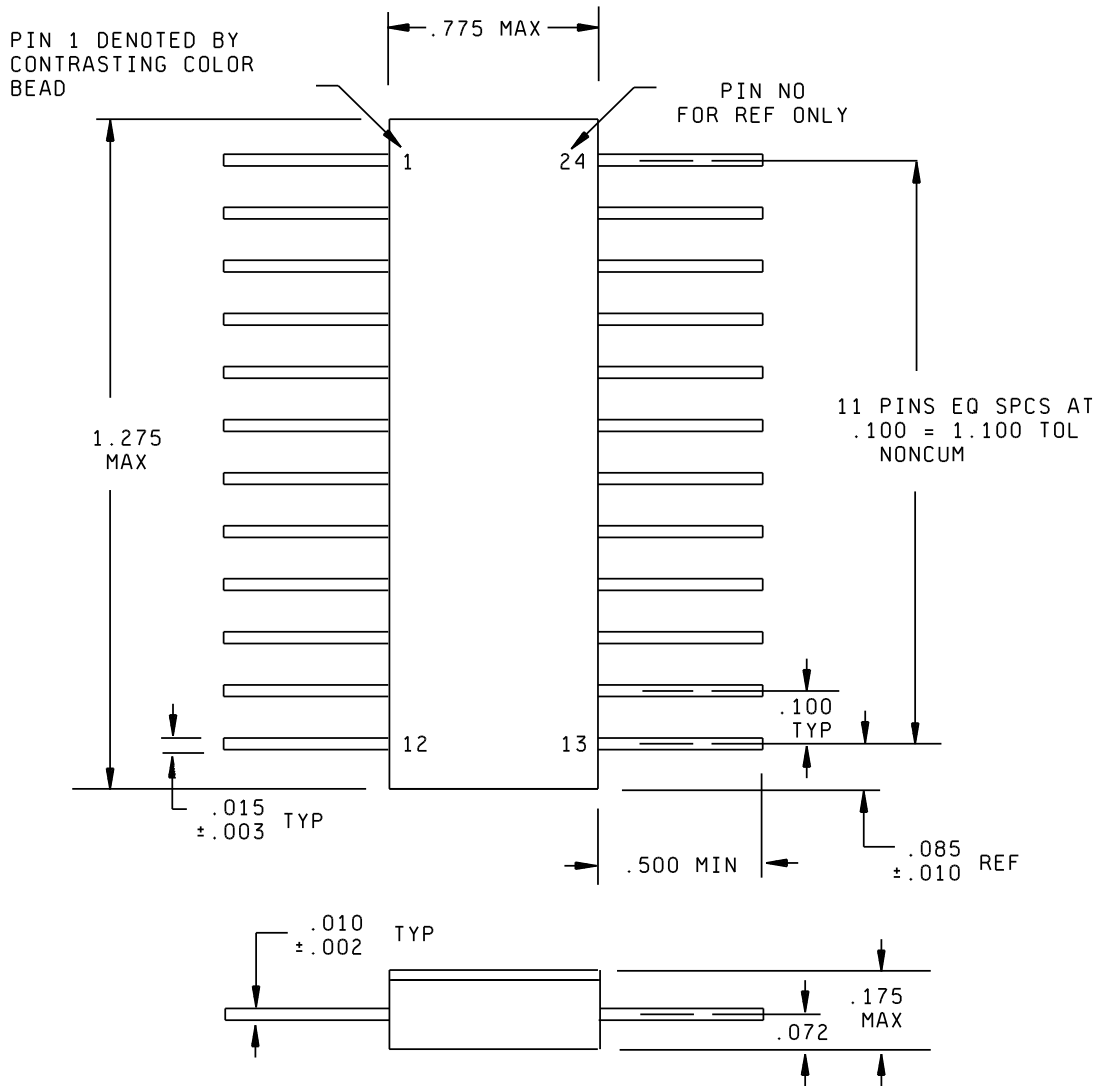
**5962-86049**

REVISION LEVEL  
**C**

SHEET  
**14**

Device type 02 and 06

Case T



Inches	mm
.002	0.05
.003	0.08
.010	0.25
.015	0.38
.072	1.83
.085	2.16
.100	2.54
.175	4.45
.500	12.70
.775	19.68
1.100	27.94
1.275	32.39

FIGURE 1. Case outlines - Continued.

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Device type	All		
Case outline	Cases X, Y, Z, U, and T		
Terminal number	Terminal symbol	Terminal number	Terminal symbol
1	TX Data out	13	V <sub>CC</sub> <u>1/</u>
2	TX Data out	14	No connection
3	Ground <u>1/</u>	15	RX Data Out
4	No connection	16	RX Data Out
5	No connection	17	No connection
6	No connection	18	Ground <u>1/</u>
7	RX Data out	19	V <sub>EE</sub> <u>2/</u>
8	Strobe	20	V <sub>CC1</sub>
9	Ground <u>1/</u>	21	TX Inhibit
10	RX Data out	22	TX Data In
11	No connection	23	TX Data In
12	No connection	24	No connection

1/ GND pins should all be connected externally. Pin 13 is +15 V dc for device types 01, 03, 04, 05, 06, 07, and 08 only, no connection for device type 02.

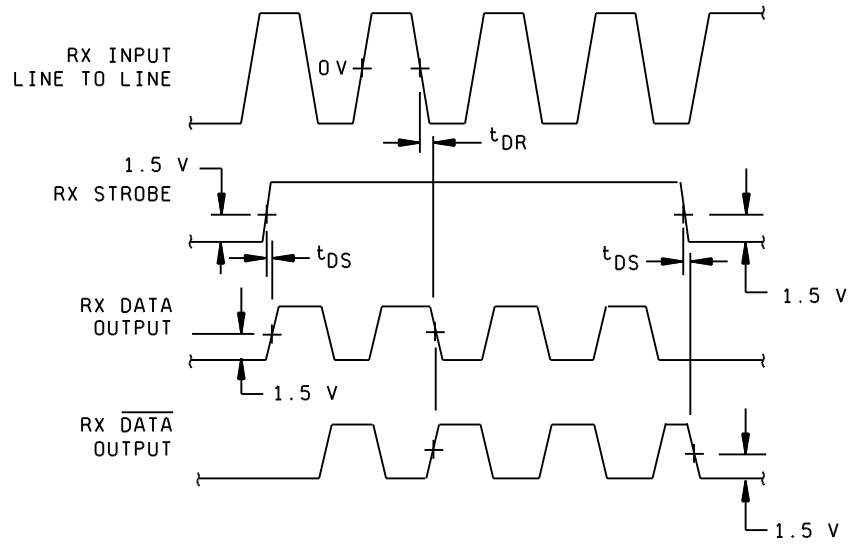
2/ Pin 19 for device type 06, only, not connection.

FIGURE 2. Terminal connections.

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Device types 01 through 07

Receiver timing



Transmitter timing

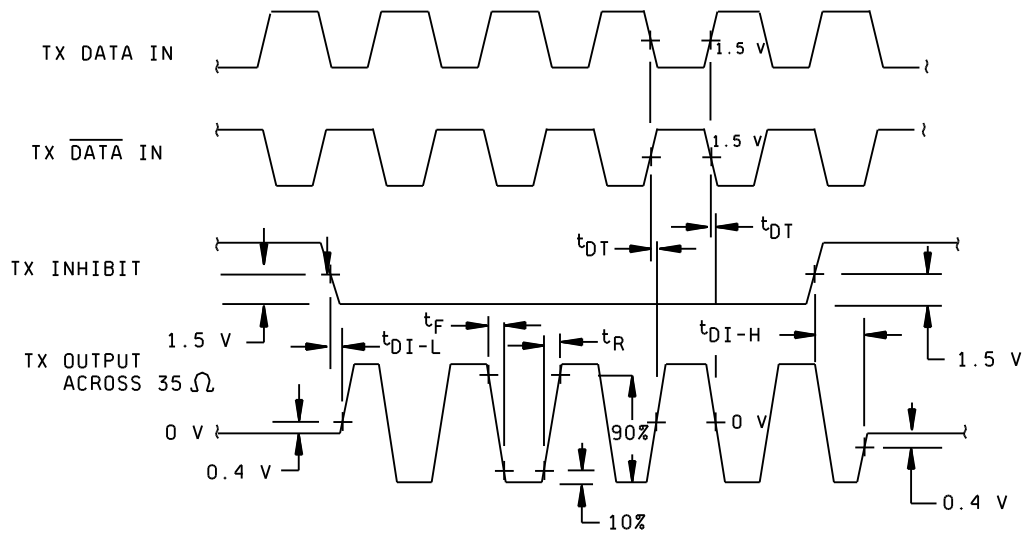


FIGURE 3. Waveforms.

STANDARDIZED  
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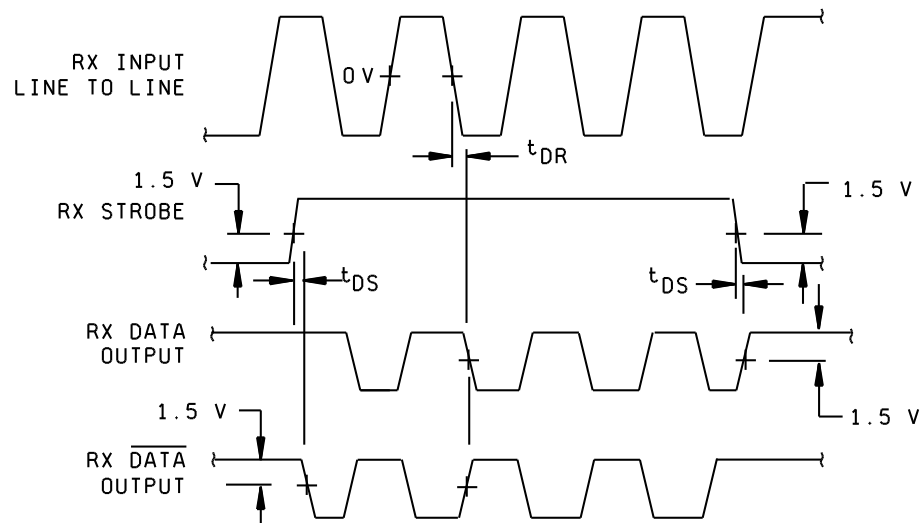
SIZE  
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REVISION LEVEL  
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SHEET  
**17**

## Receiver timing



## Transmitter timing

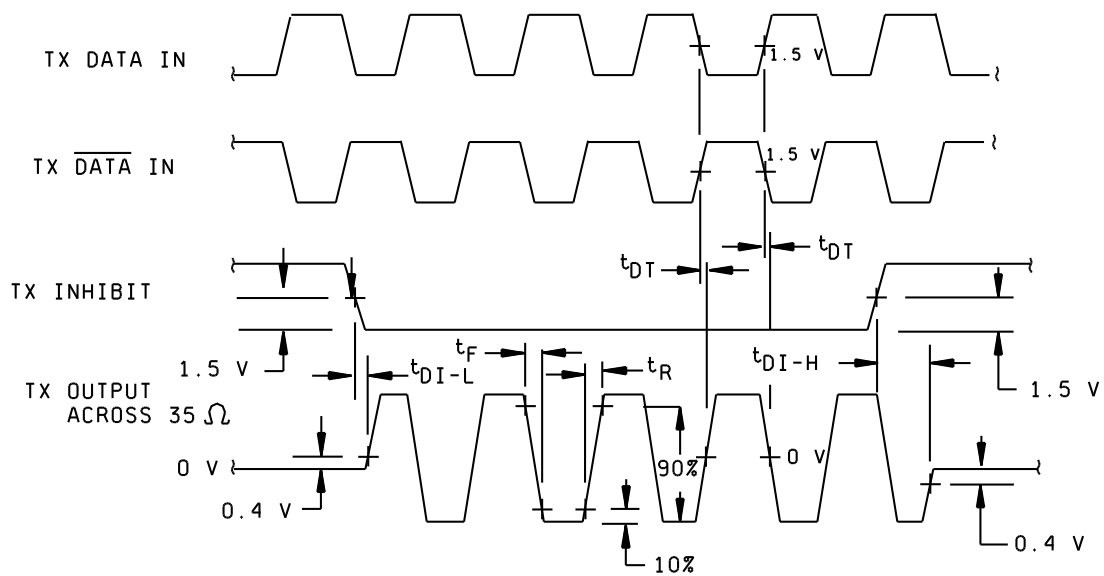


FIGURE 3. Waveforms - Continued.

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SHEET  
**18**

TABLE II. Electrical test requirements.

MIL-STD-883 test requirements	Subgroups (in accordance with method 5008, group A test table)
Interim electrical parameters	---
Final electrical test parameters	1*,2,3,4,5,6, 9,10,11
Group A test requirements	1,2,3,4,5,6 9,10,11
Group C end-point electrical parameters	1,2,3
Group E end-point electrical parameters for RHA devices	Subgroups** (in accordance with method 5005, group A test table)

\* PDA applies to subgroup 1.

\*\* When applicable to this standardized military drawing,  
the subgroups shall be defined.

4.3 Quality conformance inspection. Quality conformance inspection shall be in accordance with MIL-H-38534 and as specified herein.

4.3.1 Group A inspection. Group A inspection shall be in accordance with MIL-H-38534 and as follows:

- a. Tests shall be as specified in table II herein.
- b. Subgroups 7 and 8 shall be omitted.

4.3.2 Group B inspection. Group B inspection shall be in accordance with MIL-H-38534.

4.3.3 Group C inspection. Group C inspection shall be in accordance with MIL-H-38534 and as follows:

- a. End-point electrical parameters shall be as specified in table II herein.
- b. Steady-state life test, method 1005 of MIL-STD-883.
  - (1) Test condition A, B, C, or D. The test circuit shall be maintained by the manufacturer under document revision level control and shall be made available to either DESC-EC or the acquiring activity upon request. Also, the test circuit shall specify the inputs, outputs, biases, and power dissipation, as applicable, in accordance with the intent specified in test method 1005.
  - (2)  $T_A$  as specified in accordance with table I of method 1005 of MIL-STD-883.
  - (3) Test duration: 1,000 hours, except as permitted by method 1005 of MIL-STD-883.

4.3.4 Group D inspection. Group D inspection shall be in accordance with MIL-H-38534.

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## 5. PACKAGING

5.1 Packaging requirements. The requirements for packaging shall be in accordance with MIL-H-38534.

## 6. NOTES

6.1 Intended use. Microcircuits conforming to this drawing are intended for use for Government microcircuit applications (original equipment), design applications, and logistics purposes.

6.2 Replaceability. Microcircuits covered by this drawing will replace the same generic device covered by a contractor-prepared specification or drawing.

6.3 Configuration control of SMD's. All proposed changes to existing SMD's will be coordinated with the users of record for the individual documents. This coordination will be accomplished in accordance with MIL-STD-481 using DD Form 1693, Engineering Change Proposal (Short Form).

6.4 Record of users. Military and industrial users shall inform Defense Electronics Supply Center when a system application requires configuration control and the applicable SMD. DESC will maintain a record of users and this list will be used for coordination and distribution of changes to the drawings. Users of drawings covering microelectronics devices (FSC 5962) should contact DESC-EC, telephone (513) 296-6047.

6.5 Comments. Comments on this drawing should be directed to DESC-EC, Dayton, Ohio 45444, or telephone (513) 296-5373.

6.6 Approved sources of supply. Approved sources of supply are listed in QML-38534. Additional sources will be added to QML-38534 as they become available. The vendors listed in QML-38534 have agreed to this drawing and a certificate of compliance (see 3.7 herein) has been submitted to and accepted by DESC-EC.

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# STANDARDIZED MILITARY DRAWING SOURCE APPROVAL BULLETIN

DATE: 94-01-14

Approved sources of supply for SMD 5962-86049 are listed below for immediate acquisition only and shall be added to QML-38534 during the next revision. QML-38534 will be revised to include the addition or deletion of sources. The vendors listed below have agreed to this drawing and a certificate of compliance has been submitted to and accepted by DESC-EC. This bulletin is superseded by the next dated revision of QML-38534.

Standardized military drawing PIN	Vendor CAGE number	Vendor similar PIN <u>1/</u>
5962-8604901XX <u>2/</u>	19645	BUS-63105
5962-8604902ZX	19645	BUS-63105II
5962-8604902TX	19645	BUS-63106II
5962-8604903YX	88739	ARX2402
5962-8604904UX	88739	ARX3402
5962-8604905XX	32116 19645	CT-1487M BUS-8553
5962-8604905YX	32116	CT-1487M
5962-8604906YX	57363	NHI-1509
5962-8604906TX	57363	NHI-1509FP
5962-8604907XX	5Y243	FC155361
5962-8604908XX	5Y243	FC155362

1/ Caution. Do not use this number for item acquisition. Items acquired to this number may not satisfy the performance requirements of this drawing.

2/ Inactive for new design, not available from approved source of supply.

<u>Vendor CAGE number</u>	<u>Vendor name and address</u>
19645	ILC Data Device Corporation 105 Wilbur Place Bohemia, NY 11716
32116	Marconi Circuit Technology Corporation 160 Smith Street Farmingdale, NY 11735
5Y243	STC Components Incorporated 636 Remington Road Schaumburg, IL 60195
57363	National Hybrid Incorporated 2200 Smithtown Avenue Ronkonkoma, NY 11779
88739	Areoflex Laboratories Incorporated 35 South Service Road Plainview, NY 11803

The information contained herein is disseminated for convenience only and the Government assumes no liability whatsoever for any inaccuracies in this information bulletin.